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Gifted Athletes and Complexity of Family Structure: a condition for talent development?

JACQUES H. A. VAN ROSSUM & HANNO VAN DER LOO¹

In a recent study, Csikszentmihalyi, Rathunde and Whalen (1993) report on the significance of the family structure for the career of the talented adolescent. They suggested that a functional family structure is one that is both integrated (cohesive and stable) and differentiated (able to adapt and change when necessary). This finding was not replicated in Dutch samples in the field of athletics. First of all, compared to a matched sample of "normal" athletes, talented athletes did not regard their families as more integrated and differentiated. Further, no differences were found between two samples of parents of each of the athletes' samples. The Dutch results severely question the generalizability of the US finding. A problem with the Csikszentmihalyi et al. (1993) study is the processing of the FACES II data, which seriously undermines the validity of their findings.

Introduction

It is difficult to deny that parents have a significant influence on the career of talented individuals. The home environment is probably the most relevant factor for actualising a young person's capacity to be successful in any field of talent (cf. Freeman, 1993). In Bloom's (1985) classical study on talented individuals in science, arts and athletics, parents were shown to play a number of quite specific roles and parental support appears to be of most decisive importance in the earlier phases of the careers of their children. They pass on the value of achievement, emphasizing among other things self-discipline and the productive use of time, while highly-praised values are not just expressed verbally, but are present in daily behavior and activities. In general, Bloom's (1985) study indicated that the family climate regarding the talent field has a less direct, but certainly not less relevant impact on the career of the talented individual. In the later phase of the athletes' career, parents seem rather absent. In fact, a summary table of the parental influence portrays an empty cell in the third phase (Table 12-1 in Régnier, Salmela and Russell's (1993) chapter on 'Talent detection and development in sport'). However,

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in research with Dutch top-level athletes (in which each participating athlete is member of a national squad) it has been shown that parents play several roles during the third phase (van Rossum, 1995, p. 47).

They are financial supporters, they organize their household in relationship to the athletes' schedule, they provide moral support and general encouragement, they organize the transportation to practice and matches/games, they are available in time of athletic problems such as injury, and they visit the athletes' match/game.

The finding that parents of top-level Dutch athletes are heavily involved in their child's athletic career at this career phase (in contrast to the absence of parental roles suggested in Bloom's study) can probably be ascribed to the fact that most of the Dutch athletes still live at home with their parents.

The importance of parents has also been emphasized in a recently published study on gifted US adolescents. In the book *Talented teenagers: the roots of success and failure*, Csikszentmihalyi *et al.* (1993) reports an investigation on a group of 208 talented individuals from a Midwestern semi-urban community. The study was executed in consequence of the fact that of those young people who "become committed to the development of their talent" (p. 5), many "become disengaged from their talent" (p. 5). The main aim of the study, to be indicated further as the Chicago study, was "to understand what makes it possible, given similar environmental conditions, for some teenagers to continue cultivating their talent while other equally gifted teens give up and never develop their abilities" (p. 1). In the Chicago study one of the central explanatory factors appeared to be the *structure* of the family of the talented adolescent. The authors state that a complex family is to be preferred. Family complexity indicates that a family is, at the same time, both integrated and differentiated. Such a family is one that is "cohesive and stable as well as able to adapt and change when necessary" (p. 13). Csikszentmihalyi *et al.* (1993, p. 71) conclude from the data obtained from talented adolescents: "... these findings suggest that moderate to high family cohesiveness coupled with high adaptability, seems to provide the best context for adolescent development". According to the Chicago findings, then, an optimal or "healthy" family protects a talented individual against dropping-out of the talent field, and thereby the relevance of the variable "family structure" for the career of talented adolescents is documented.

The Chicago findings are provocative. While probably no-one would deny that the family is helpful in the gifted individual's involvement in the talent field over the years, it is rather unusual to find that family structure can be held largely responsible for the dropping-out of talented individuals. While a large number of studies in the field of sport psychology can be cited having addressed the problem of attrition or dropping out of sports (see, for reviews, Brustad (1993), Gould & Petlichkoff (1988), Roberts & Treasure (1992)), the perspective in these studies is generally at the level of the individual. Factors such as perceived competence, motivational orientation, and/or self-esteem have been studied intensively. Against this background, the Chicago study suggested the relevance of a variable at another level of investigation. Family structure is suggested both as a means to promote further

Table 1. The two dimensions of family structure according to the “Circumplex Model” of Olson *et al.* (1983): “adaptability” and “cohesion”, yielding 16 types of family systems, which can be ordered under three headings (“functional”, “unbalanced”, and “dysfunctional”)

FACES II (manual)	Adaptability			
Cohesion	rigid	structured	flexible	chaotic
disengaged	dysfunctional	unbalanced	unbalanced	dysfunctional
separated	unbalanced	<i>functional</i>	<i>functional</i>	unbalanced
connected	unbalanced	<i>functional</i>	<i>functional</i>	unbalanced
enmeshed	dysfunctional	unbalanced	unbalanced	dysfunctional

development, as well as a discriminating factor between gifted adolescents who stay involved and those who drop out. Therefore, Csikszentmihalyi *et al.*'s (1993) study appears to request attention for a relatively unknown, for in this context not much investigated, variable. Families can be differentiated in supportiveness for the talented individual, depending upon the way the family appears to have been organizing itself. In the Chicago study, family structure has been measured by means of ‘FACES II’ (Family Adaptability and Cohesion Evaluation Scales (Olson *et al.*, 1982)), a well-known instrument in the larger context of family studies.

The present study was designed to replicate a specific part of the Chicago study, the role of family structure, in a specific talent field, athletics. A sample of gifted athletes from various sports was found in a special secondary school (see below); each of the athletes was labelled “talented” by his/her sports association, and was confirmed as such by the Dutch Olympic Committee. Our study included a contrast group of adolescents who were involved in competitive sport, but not identified as “gifted” (that is, not being a member of a national squad, but member of a local sports club). Further, data were gathered not only from adolescent athletes, but also from their parents.

A major problem in the Chicago study is the way the data from FACES II were handled. This problem seriously undermines the conclusions which have been drawn from the data. According to the theoretical orientation described by the constructors of the FACES II instrument, both the dimension of adaptability and cohesion are subdivided at four levels (Olson *et al.*, 1982). An extreme (high or low) score on each dimension is considered risky, and indicates dysfunctionality of the family structure. Table 1 depicts the four by four table, and shows that a “healthy” family structure is present in four of the 16 quadrants (labelled “functional” in the table; cf. Olson *et al.*, 1983).

As is indicated in Table 1, it must be emphasized that moderate scores on family cohesion and family adaptability are of utmost relevance. Further, it is to be noted that the incidence of families in the “extreme” cells is less likely from a strictly statistical perspective, since a distribution of 15%, 35%, 35%, 15% across cells is employed (Olson *et al.*, 1983).

Table 2. The ordering of the two dimensions of family structure in the Csikszentmihalyi *et al.* (1993) study, yielding four types of family systems

FACES II Chicago study	Adaptability			
	Cohesion	rigid	structured	flexible chaotic
disengaged separated		LOW / LOW (adap.) / (coh.)		HIGH / LOW (adap.) / (coh.)
connected enmeshed		LOW / HIGH (adap.) / (coh.)		HIGH / HIGH (adap.) / (coh.)

The FACES II data appear to have been treated quite differently in the Chicago study. According to Csikszentmihalyi *et al.* (1993, p. 71):

For the sake of simplicity, however, test scores may be summarized into four combinations of high and low cohesion and adaptability. For example, a family may be characterized by high cohesion but low adaptability (HI/LO).

This procedure yields an organisation of the data which departs markedly from the recommended manner—Table 2 presents the procedure as employed in the Chicago study. Although it is not explicitly mentioned, it might be assumed that the median score was employed to distinguish “high” and “low” in the Chicago study.

A comparison of Tables 1 and 2 immediately suggests that a higher frequency of families in the high/high quadrant (as observed in the Chicago data) does, in itself, not indicate a higher number of functional families, since “unbalanced” and “dysfunctional” families can hardly be considered helpful for the career opportunities of the gifted individual. While the combination “flexible—connected” certainly would do so, combinations “flexible—enmeshed” and “chaotic—connected” probably do not, and “chaotic—enmeshed” would certainly not. Csikszentmihalyi *et al.*’s (1993) conclusion would therefore appear to be based on the wrong assumption that a higher score on cohesion or on adaptability would be profitable, and yields a “better” family structure. This at least suggests that only tentative conclusions can be drawn from the Chicago study.

The Chicago study involved highly talented individuals in five talent fields: science, mathematics, arts, music, and athletics. Each gifted individual was nominated by the school teacher. In our replication, we have limited ourselves to talented Dutch athletes, each of whom was nominated as such by the Dutch Olympic Committee and recognized as gifted within his/her own athletic association. Adolescents with such “labels” can attend a secondary school, where special and specific support is available in order to sustain the combination of top-level athletics and secondary education. There are ten such schools in the Netherlands, each having mainly regional significance.

Table 3. The two samples of Dutch adolescent athletes compared on indices regarding their involvement with the field of athletics

Athletes	Elite level	Competitive level	
Practice (sessions/wk)	4.4 (1.7)	2.3 (1.1)	$p < 0.01$
Practice (hours/wk)	8.4 (5.4)	2.9 (1.3)	$p < 0.01$
Game, match (number/mth)	3.7 (2.0)	2.1 (1.5)	$p < 0.01$
Practice (travel time/practice)	0.6 (0.5)	0.3 (0.3)	$p < 0.01$
Match (travel time/match)	1.8 (0.6)	1.2 (0.8)	$p < 0.05$

Method

Subjects

Our study replicated part of the Chicago study with Dutch adolescent athletes and their parents. To match the group of top-level athletes ($n = 3g$; 26 boys, 13 girls), and a control group of competitive athletes was formed ($n = 34$; 22 boys and 12 girls). Each athlete was attending the same secondary school.

The nominated athletes came from various sports: soccer, gymnastics, judo, track and field, tennis, cycling, basketball, volleyball. For comparison, the athletes in the Chicago study came from a school known for its achievements in swimming, baseball, football, soccer, volleyball, basketball, tennis, and wrestling.

A short questionnaire was filled in by 215 classmates of the nominated athletes, asking them about relevant characteristics (age, gender, type and level of sport practice). Of the 39 pupils selected for the control group on the basis of their responses to this short questionnaire, 34 agreed to participate.

The two samples of athletes turned out to be clearly different in the amount of time spent in athletics (see Table 3). While elite athletes played significantly more games than the controls, had more practice sessions and spent more time travelling to and from the sports accommodation, they also claimed to have invested more hours per week in their sport as "preparation time": for the talented (elite) athletes it totalled nearly 13 hours/week, while the competitive (control) athletes rated their time involvement at about 4 hours/week.

Procedure

A questionnaire was used to obtain information, both from the athletes and from their parents. Each questionnaire was filled in anonymously; this procedure was chosen in order to minimize social desirability in answering the questionnaire (low mean scores on the Dutch version of the Marlowe—Crowne "social desirability

scale" (Hermans, 1967) were observed in the samples of athletes as well as parents). A disadvantage of this procedure is that questionnaires of athlete and parent cannot be paired.

The parental questionnaires were mailed after having received the questionnaires from the athletes who filled in the questionnaire at the secondary school, in the presence of an instructor. Parents were asked to return the questionnaire by mail. A return rate of 80% for the 73 questionnaires was obtained, with high return percentages in the "talented" group ($n = 28$; 72%) as well as in the "control" group ($n = 30$; 88%). Two parents of this latter group had to be excluded from further analysis because of incomplete FACES data. The parents were asked to have the questionnaire filled in by the parent who was most strongly involved with the athlete's sport career—in both the talented and the control group mostly fathers appeared to have "done the job" (in 72% and 63% of the cases, respectively).

Instrument

To measure complexity of family structure, the Dutch adaptation of FACES II was used: GDS (Gezins Dimensie Schalen [Family Dimensions Scales]), Buurmeijer & Hermans (1988). The instrument contains three scales: "cohesion", "adaptability" and "social desirability". The instrument contains 44 short statements which have to be answered in terms of applicability to present own family situation (never true, sometimes true, often true, always true). Two scales are used in the statistical analysis: "cohesion" (23 items; Cronbach's alpha: 0.87; test-retest: 0.80) and "adaptability" (13 items; Cronbach's alpha: 0.81; test-retest: 0.81). Intercorrelation between the scales (Pearson correlation): -0.47 . Construct validity was determined by principal component factor analysis (78.5% explained variance), and content validity has been determined by agreement between GDS-scale scores and expert ratings. GDS discriminates well between norm sample ($n = 669$) and four clinical samples (total $n = 429$), as well as between the four clinical samples. Separate norms are available for parents and for children. Psychometric information as cited above has been taken from the GDS manual (Buurmeijer & Hermans, 1988).

The description of the "cohesion" and "adaptability" scales are similar to those by Olson *et al.* (1982, 1983), given above. The "social desirability" scale (8 items; Cronbach's alpha: 0.78; test-retest: 0.68) was constructed originally to be an index of response tendency in the subject, but the authors of the Dutch GDS state that their research suggested that the scale is better used as an indication of the extent to which a member presents his family in extreme positive terms ("idealising") or in extreme negative terms ("disqualifying"). Mean scores on this scale were not significantly different between athletes' samples (means: 20.7 and 20.6) and parents' samples (means: 21.5 and 22.3).

Results

The responses to the GDS were converted, following the guidelines in the GDS manual, into one of the 16 types of family structure (cf. Table 1). For the sake of

Table 4. Results of Dutch samples of athletes and their parents: percentages of incidence of family structure types for each of the four samples, arranged according to the "Circumplex Model" (cf. Table 1)

GDS (Dutch FACES II)	Talented athletes (<i>n</i> = 39)	Athletes (controls) (<i>n</i> = 34)	Parents (talented athletes) (<i>n</i> = 28)	Parents (control athletes) (<i>n</i> = 28*)
functional	44% (<i>n</i> = 17)	71% (<i>n</i> = 24)	68% (<i>n</i> = 19)	64% (<i>n</i> = 18)
unbalanced	44% (<i>n</i> = 17)	26% (<i>n</i> = 9)	18% (<i>n</i> = 5)	25% (<i>n</i> = 7)
dysfunctional	13% (<i>n</i> = 5)	3% (<i>n</i> = 1)	14% (<i>n</i> = 4)	11% (<i>n</i> = 3)

*Two parents of control athletes group were excluded from analysis due to incomplete GDS data.

simplicity, three categories of types are distinguished: a functional family structure, an unbalanced structure and a dysfunctional structure. For reasons of statistical analysis (low incidence rates in these cells), the categories "unbalanced" and "dysfunctional" were collapsed into the category "not functional".

Table 4 presents the percentages of the family structure categories for each of the four samples involved. Statistical analysis indicated that the frequency distribution of the talented athletes was significantly different from that of the control athletes: "functional" versus "not functional" (that is, unbalanced and dysfunctional): $\chi^2 = 4.34$ ($df = 1$; $p < .05$). No differences were statistically ascertained for the two samples of parents ($\chi^2 = 0.01$ $df = 1$; $p > .05$).

It seems fair to conclude from the data presented in Table 4 that, first of all, talented athletes regard the structure of their families to be different from that of the control group of competitive athletes—talented athletes take a more negative perspective, since a greater number of families were, according to the talented athletes, "unbalanced" or even "dysfunctional". For the two groups of parents, no differences were observed—in both samples a largely positive assessment of the family structure occurred: the great majority of families was classified in the category "functional".

Discussion

The study reported here was instigated by the work of Csikszentmihalyi *et al.* (1993) which addressed the question of talented adolescents dropping out of the talent field. The Chicago study was designed to investigate the role of motivation in the process of commitment and disengagement, especially the relevance of "intrinsic motivation". Being involved in the activity for the sake of the activity itself, and *not* for the effects or results of the activity, was found to be a decisive factor (a finding in agreement with many earlier studies, cf. Amabile, 1993; Lehwald, 1990; Ryan *et al.*, 1984; Weiss & Chaumeton, 1992). It was also found in the Chicago study that

the structure of the family must be considered as one of the important supporting elements for the continuation of being intrinsically motivated towards the talent field. The present study was initiated to replicate this finding and while it does not take issue with the general emphasis by Csikszentmihalyi *et al.* (1993) on the role of intrinsic motivation, we have questioned the role of the family structure as supporting such motivation. Our findings suggest that, at least for a Dutch sample of athletes, no favourable difference exists in the functionality of the family structure for talented athletes compared to a control group of "ordinary" athletes. In order to explore possible explanations for these findings, two perspectives will be addressed. In the first perspective, the results of the Chicago study are taken as the starting point, which raises the question why talented Dutch athletes showed a rather negative view of their family structure. In the second perspective, the point of departure is the distribution of Dutch families in terms of GDS categories; here our findings are approached from a completely different angle, namely why only talented Dutch athletes appear realistic in their assessment of family structure.

In order to try and search for an explanation of the findings as reported in Table 4, one might certainly conclude that talented Dutch athletes regard their family as much less functional, or "healthy". This raises the question whether relevant dysfunctionality might sometimes be helpful in the athletic domain. While five talent fields have been addressed in the Chicago study, Csikszentmihalyi *et al.* (1993) have not drawn attention to possible differences between them. Therefore, one is inclined to take it for granted that, as far as family structure is concerned, complexity, or functionality, of family structure is similarly relevant in each. Although empirical studies about the relevance of family structure are certainly not abundant (cf. Sahin, 1995), the general notion of family stability has been addressed more often. In a recent review of research on parenting, Feldman and Piirto (1995) remark that talented youth in the arts (actors, popular musicians, visual artists, dancers) seem more often to have come from less stable families than those who later became scientists, mathematicians and classical musicians. It is even stated that sometimes a family system that operates on a dysfunctional level cannot be considered a disadvantage, but might even "have enhanced talent development" (Feldman & Piirto, 1995, p. 287). The explanation which presents itself here is that differences between talent fields may exist regarding the most helpful family structure to promote talent development.

A second approach to explain the findings of the present study might be taken from a quite different perspective. In the Dutch manual of the GDS (Buurmeijer & Hermans, 1988), the three distinguished types of family structure appear to occur in the Netherlands, according to a sample of 669 respondents, in the following percentages: 49% "functional"; 42% "unbalanced"; and 9% "dysfunctional". This frequency distribution is remarkably similar to that observed in the sample of talented athletes (cf. Table 4). Viewed from this angle, it would seem to be the case that the talented athletes have taken a rather realistic perspective on their families' structure. Talented athletes might have learnt in the course of their athletic career to view things from a realistic perspective (and possibly therefore answered the GDS questions accordingly). Since both parents' groups as well as the control athletes

group have to some extent been "outsiders", they might have evaluated the structure of the family from their more optimistic perspective. It might further be added that both groups of athletes are attending the same secondary school, a school which is known to help and support talented athletes to combine educational and athletic goals—possibly the talented athletes have opted for this special school because they intuitively feel that the structure of their family interferes with an optimal combination of both goals.

While we have not been able to support the findings obtained in the Chicago study, it should not be overlooked that, as we stated in the Introduction, a major problem with the Chicago study is the treatment of the FACES II measurements, and the concomitant lack of faith in the obtained empirical results.

Although there are some obvious differences between the present study and the Chicago study (nomination procedure; response rate; male/female ratio), we feel that these should not be overestimated in order to explain the different findings obtained.

In the Chicago study, school teachers nominated highly talented pupils of grades 9 and 10 in five fields: science, mathematics, arts, music, athletics. The Dutch study is limited to the domain of athletics, and the nominees were not locally appointed by teachers, but by authorities at national level. Although a different procedure was used to assign talented adolescents, it is certainly the case that in both studies gifted adolescents were selected. Family structure of this talented group was, in each of the studies, compared to that of a control group.

Further, comparing the Chicago and the Dutch study, another aspect which might be of importance concerns the respective response rates. Agreement to participate is quite clearly different in both studies. Of the original group of 394 nominees in the Chicago study, only 208 respondents (53%) actually agreed to participate, of whom 190 adolescents (48%) completed FACES II. The final sample, on which the findings reported by Csikszentmihalyi *et al.* (1993) are based, departed in several ways from the one originally intended. As the authors indicate, girls and 10th graders were clearly overrepresented. While the rather low response rate of the talented adolescents seriously questions the generalizability of the Chicago findings to the population of U.S. gifted adolescents, the rather small sample sizes in the Dutch study might warn against too easy generalisation, even to the larger population of talented adolescent athletes. In this context, the very different ratio of male/female respondents might be added. While girls appeared to be underrepresented as nominees in the Chicago study, the majority (55%) of the actual respondents were female; in the Dutch study about 35% of the adolescents were girls, which is a fair reflection of the female sports participation at the national top level of competition in the Netherlands.

The present findings indicate that talented athletes evaluated their family to be less often "functional" than their control counterparts. We are inclined to have more faith in our findings, as they are based on a correct treatment of the raw data. A decisive problem in the comparison of the Dutch and the Chicago study lies, in our view, in the operationalisation of "family structure". While both the Chicago and the Dutch study employed FACES II, handling of the raw data was done very differ-

ently, and, as it would appear, in an incorrect way in the Chicago study. It would therefore seem that more weight should be given to the second explanation we offered for the opposite findings: talented athletes show a rather realistic perspective towards the structure of their families, and differ from their parents, who appear to be more positive and optimistic. Nevertheless, further research on this topic is indicated and certainly necessary to gain more insight into the role and impact of family structure on the development of talented youth. If more insight is to be obtained about the process and the dynamics of talent development, in whatever field of giftedness, we must dare to take steps beyond static family characteristics (such as: number of siblings in the family, birth order, whether or not the biological family is intact, characteristics of education and occupation of parents). Family structure, as an index or crystallization of family interactions, and as described here in the dimensions of "cohesion" and "adaptation", might be a first step towards the observation of more dynamic aspects of the family, as it influences the individual life of gifted persons. It has indeed been amply documented that parents do take upon themselves a major role in training their promising child, and are "both willing and able to make a larger-than-average practical contribution towards providing their children with opportunities to learn" (Howe, 1992, pp. 144–145).

In a three-year longitudinal investigation of talented children in sport the dynamic effect which sport has on family life is described: "The main challenge to the family system comes from having to adapt to the increasing financial, physical and emotional demands of the child's increasing participation in sport" (Rowley, 1995, p. 137). In a life-cycle model the period of adolescence is discussed at some length, since it is suggested to be a risky period. In general, in those years the talented child makes an important transition, becoming more strongly involved and has to adapt to a much more intensive practice schedule (more and longer training sessions, at a higher intensity). This increasing practice schedule asks, in general, more effort, time and money to be invested by the parents, which might yield further strain on family life (Rowley, 1995).

Some years ago, Harry Passow (1990, p. 21) described what he saw then as much needed research, stating that there was a need "... for more research on families of the gifted—the problems, the pleasures, the ways that families facilitate, impede and otherwise influence the development of talent". While Csikszentmihalyi *et al.*'s (1993) findings claimed spectacular insights into the supportive role of family structure for sustaining intrinsically motivated behavior, our study severely questioned the validity of their results. In contrast to the Chicago study (1993), families of talented (elite) athletes were *not* found to show a complex (or functional) structure more often than those of competitive (control) athletes. On the contrary, a functional structure was found to occur *less* often in families with talented athletes, compared to control samples. This finding certainly asks for further research, not only to confirm the results for the athletic domain, but also to investigate the relevance of family structure in other talent domains. Above all, the present study underlines the relevance of the role of the family in the career of a talented individual, as has been documented clearly in earlier research (e.g., Rathunde, 1988; Sahin, 1995; for a review, see Freeman, 1993), also in the context of top-level

athletics (Hemery, 1986)—if one further takes into account the long number of years it takes for the talented individual to “reach the top” (cf. Ericsson & Crutcher, 1990), one can only wonder why the family as the most central supporting system did not attract much more (systematic, scientific) attention much earlier.

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